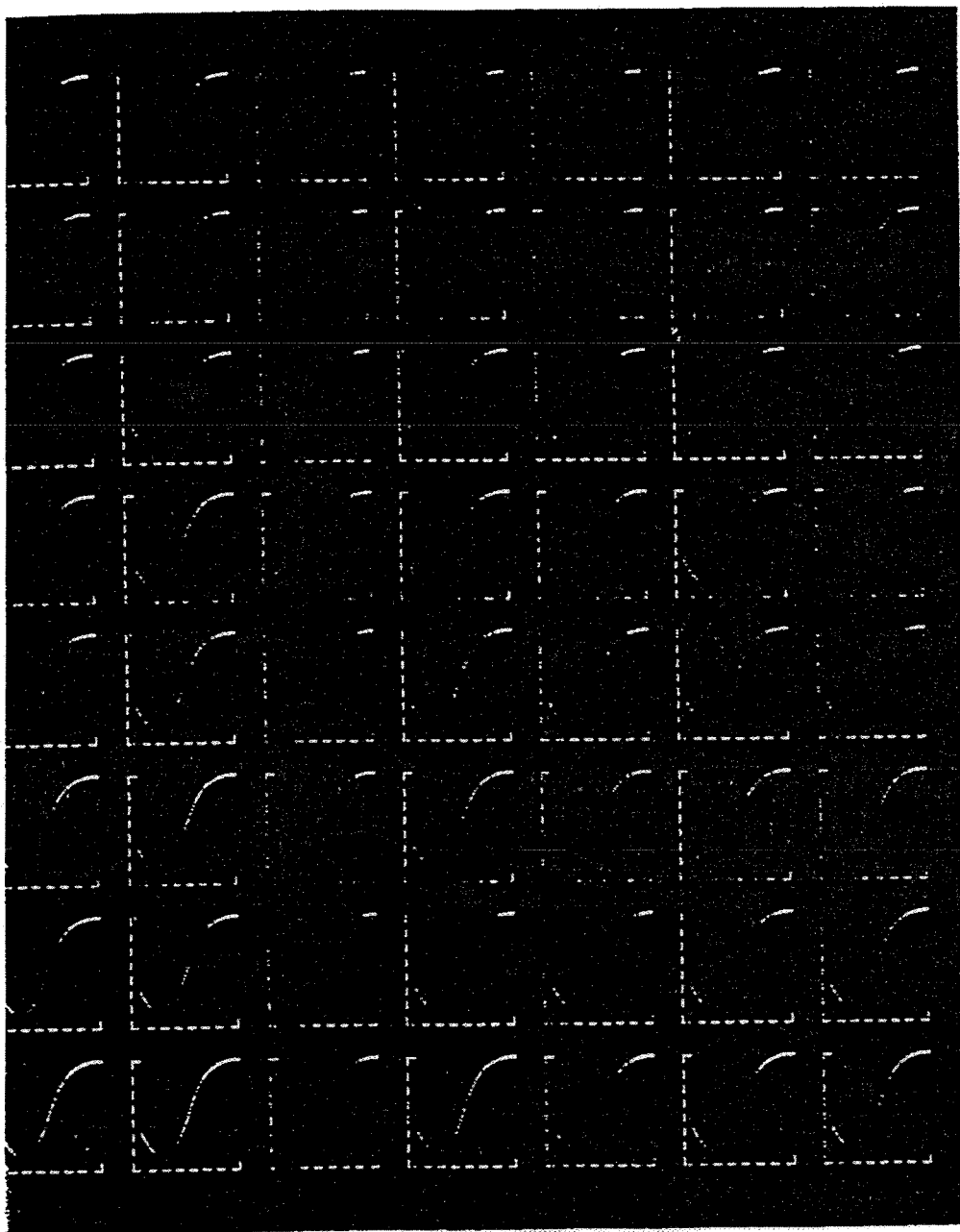


# GeneAmp PCR System 9600



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**PERKIN ELMER CETUS**

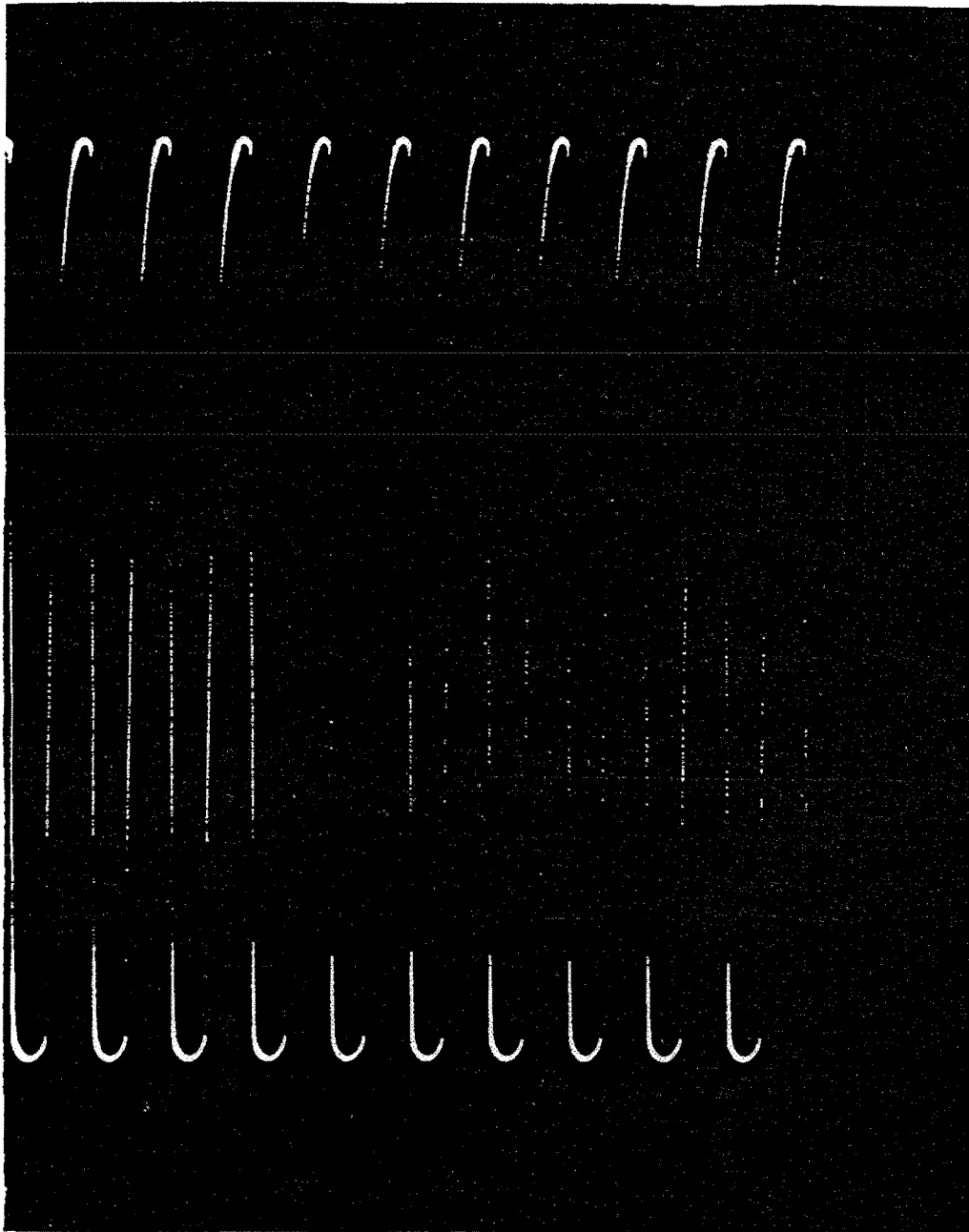
RMS 71095

EXHIBIT D

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RMS 71096

# DNA Thermal Cycler 480



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**PERKIN ELMER CETUS**

RMS 71097

EXHIBIT E

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RMS 71098

Kodak Memo

January 29, 1988

To:

Ms. S. Aumiller                      Mr. J.G. Knowles                      Dr. P.N. Schnipelsky  
Dr. W.G. Gerber                      Dr. P.A. Law                      Dr. J.C. Sninsky  
Mr. J.C. Junker

From: Fred Marcellus, Biological Diagnostics, B-800L, KP (716-722-6537)  
Subject: Milestones, Expenditures, & Personnel Report for YE 1987

This document represents the first issue of the Milestones, Expenditures and Personnel report. The format for this report was reviewed at the RDMC meeting in December.

The report summarizes the information available at this time. It was decided to issue the report even though all data was not complete. It is expected that future issues will contain more complete information.

MILESTONE ISSUES

Current Products

- \* hCG -
- \* Herpes -
- \* Strep - A switch to a sandwich ELISA assay has been made due to filter variability problems with the agglutination format. The Biochemed immunopure rabbit polyclonal remains as Ab of choice for the ELISA format. ITT completed 1/4/88 for ELISA with a final diagnostic efficiency of 97-98% (N=1005 and prevalence=30-35%). Scheduling of ETT and FDA submission is in progress. Current rough estimates are provided.
- \* Gonorrhea -
- \* Chlamydia -
- \* Rapid Aids -

Future Products

- \* Cancer -
- \* HPV -
- \* Diabetes -
- \* HLA Typing -
- \* HIV (Aids)/DNA - Feasibility with model system shown; patient testing to begin.
- \* Forensics - Currently transferring Cetus technology to Kodak.
- \* Ektamizer -

2188  
21713

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RMS 71099

R&D EXPENDITURE SUMMARY

	1987 YE		% Var	1988 YE		% Var
	Forecast	Actual		Forecast	Estimated	
Kodak & Cetus						
Current Products		3448		>		
Future Products		3984		>	13870	13870
Basic Technology		3654		>		
LRPD, CPI, HRI		620			1080	1080
No Current Activity		<u>2093</u>			<u>0</u>	<u>0</u>
	12200	13785	13%	14950	14950	

PERSONNEL

	Current Month		1988 YE	
	Actual		Forecast	Estimated
(Kodak only)				
Current Products	11.2		9.8	9.8
Future Products	4.3		6.0	6.0
Basic Technology	<u>13.8</u>		<u>14.0</u>	<u>14.0</u>
	29.3		29.8	29.8

Note: If you need more detailed information than is provided in this report, please contact the program leader directly.

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RMS 71100

CETUS - MILESTONE REVIEW of R&D PROGRAMS

1/29/88

Current Products	1988																														
Immunoassays	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec													
hCG					INT	====	EIT						FDA	====					AVL												
Herpes																			ANT/ABS/FMT INT	====	EIT/FDA	====		AVL							
Strept																			ANT ABS FMT INT	====	EIT	FDA	====	AVL							
Sonorrhea																			(proposed schedule)					INT	====	EIT/FDA	====	AVL			
Chlamydia																			ANT	====				ABS/FMT INT	EIT/FDA	====	AVL				
Rapid Aids																			(proposed schedule)					INT	====			EIT	FDA	====	

ANT-Identify Antigens  
 ABS-Identify Antibodies  
 FMT-Dev Initial Test Form  
 INT-In House Tests  
 EIT-External Clinical Trials  
 (For Marketing Claims)  
 FDA-FDA Submission  
 AVL-Availability

==== Indicates that  
 Milestone is behind  
 schedule this amount

Future Products	1988																																	
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																
DNA Based Tests																																		
Cancer																																		
HPV (Cervical Cancer)																																		
Diabetes (IDDM)																																		
HLA Typing																																		
IV (Aids)/DNA																																		
Forensics																																		
Ektazizer																																		

MKT-Market Opportunity  
 FSB-Feasibility (Scientific  
 Commercial)  
 ADD-Add to Business Plan

Basic Technology

Quarterly Reviews Scheduled as Follows:

	Mar	Jun	Sep	Dec
DNA Probes & Infectious Diseases (need real schedule)	I		I	
Disposables & Evaluation	I		I	
Reagent Dev & Reagent Integration		I		I

*[Handwritten notes and signatures]*

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RMS 71101

TOTAL

TOTAL EXPENDITURES  
EX/CETUS - R & D PROGRAMS

PROGRAM NUMBERS CETUS	KODAK	1986 ACT	1987 ACT	1988 EST	LIFE-TO DATE	PROGRAM DESCRIPTION	1988 YE FCST AOP
				7620	7620	*** CURRENT PRODUCTS ***	7620
10010	6515	949	864	7	1820	HCG	7
10110	6426	670	484	220	1374	HERPES	220
10111	6427	943	677	221	1841	STREP	221
10119	6428	409	714	260	1383	GONORRHEA	260
10116	6429	857	586	211	1654	CHLAMYDIA	211
10112	6517-9	0	123	425	548	RAPID HIV ANTIBODY	425
		3828	3448	8964	16240	TOTAL	8964
						*** FUTURE PRODUCTS ***	
NA016		190	190	0	380	CANCER	0
NA017	2090	0	1	200	201	HPV (CERVICAL CANCER)	200
NA016		320	282	0	602	DIABETES (IDDM)	0
NA019		1475	1485	0	2960	HLA TYPING	0
NA114	2087	875	2926	500	3401	HIV (AIDS)/DNA	500
NA013	2989	0	0	447	447	FORENSICS	447
	5720	0	0	725	725	EXTARIZER	725
		2860	3984	1872	8716	TOTAL	1872
						*** BASIC TECHNOLOGY ***	
	6119	0	392	271	663	INFECTIOUS DISEASES (OTHER)	271
NA112/DNA	6205	488	1031	874	2393	DNA PROBES/KODAK	874
	6206	871	1120	331	2322	DISPOSABLES (SURECELL KITS)	331
	6208	53	268	224	545	EVALUATION (INT & EXT TESTING)	224
	6209	502	335	734	1571	REAGENT DEVELOPMENT	734
	6210-14	1	501	500	1002	REAGENT INTEGRATION	500
		241	7	100	348	MANUFACTURABILITY	100
		2156	3654	3034	9844	TOTAL	3034
						*** NO CURRENT ACTIVITY ***	
ID010		785	1089	0	1874	BREAST CANCER	0
ID016		122	7	0	129	ONCOGENE RAS	0
NA110/11		308	3	0	311	SHIGELLA/SALMONELLA	0
10011	6508	245	123	0	368	LH	0
	6207	649	66	0	715	INSTRUMENTATION (FOR TEST SYSTEM EVAL)	0
	4447	100	333	0	433	ANALYTICAL CHARACTERIZATION	0
	5413	29	99	0	128	IMMOBILIZED ANTIBODIES	0
	6105	87	371	0	458	POLYMERS	0
		2325	2093	0	4418	TOTAL	0
		11169	13179	13870	38218	TOTAL - ALL PROGRAMS	13870
		0	143	-50	93	LRPD	-50
		0	290	850	1140	CPI	850
		0	140	280	420	HRI	280
		11169	13752	14950	39871	TOTAL ALL EXPENDITURES	14950

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CETUS

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RMS 71102



KODAK

KODAK EXPENDITURES  
EK/CETUS - R & D PROGRAMS

PROG NO KODAK	1986 ACT	1987 ACT	1988 EST	LIFE-TO DATE	PROGRAM DESCRIPTION	1988 YE FCST AOP
*** CURRENT PRODUCTS ***						
6515	718	730	7	1455	RCG	7
6426		68	220	288	HERPES	220
6427	502	204	221	927	STREP	221
6428		24	260	284	GONORRHEA	260
6429	507	249	211	967	CHLAMYDIA	211
6517-9	0	10	425	435	RAPID HIV ANTIBODY	425
	1727	1285	1344	4356	TOTAL	1344
*** FUTURE PRODUCTS ***						
				0	CANCER	
2090			200	200	HPV (CERVICAL CANCER)	200
				0	DIABETES (IDDM)	
				0	HLA TYPING	
2087			500	500	HIV (AIDS)/DNA	500
2089			447	447	FORENSICS	447
5720			725	725	EKTANIZER	725
	0	0	1872	1872	TOTAL	1872
*** BASIC TECHNOLOGY ***						
6119		392	271	663	INFECTIOUS DISEASES (OTHER)	271
6205	339	1029	874	2242	DNA PROBES/KODAK	874
6206	871	1120	331	2322	DISPOSABLES (SURECELL KITS)	331
6208	53	268	224	545	EVALUATION (INT & EXT TESTING)	224
6209	502	335	734	1571	REAGENT DEVELOPMENT	734
6210-14	1	501	500	1002	REAGENT INTEGRATION	500
	241	7	100	348	MANUFACTURABILITY	100
	2007	3652	3034	8693	TOTAL	3034
*** NO CURRENT ACTIVITY ***						
			0	0	BREAST CANCER	0
			0	0	ONCOGENE RAS	0
			0	0	SHIGELLA/SALMONELLA	0
6508	80	87	0	167	LH	0
6207	649	66	0	715	INSTRUMENTATION (FOR TEST SYSTEM EVAL)	0
4447	100	333	0	433	ANALYTICAL CHARACTERIZATION	0
5413	29	99	0	128	IMMOBILIZED ANTIBODIES	0
6105	87	371	0	458	POLYMERS	0
	945	958	0	1903	TOTAL	0
	4679	5895	6250	16824	TOTAL - ALL PROGRAMS	6250
				0	LRPD	
		290	850	1140	CPI	850
				0	HRI	
	4679	6185	7100	17964	TOTAL ALL EXPENDITURES	7100

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RMS 71103

0188-3  
CETUS

CETUS

CETUS EXPENDITURES  
EX/CETUS - R & D PROGRAMS

PROG NO CETUS	1986 ACT	1987 ACT	1988 EST	LIFE-TO DATE	PROGRAM DESCRIPTION	1988 YE FCST AGP
			7620	7620	*** CURRENT PRODUCTS ***	7620
ID010	231	134		365	HCG	
ID110	670	416		1086	HERPES	
ID111	441	473		914	STREP	
ID119	409	690		1099	GONORRHEA	
ID116	350	337		687	CHLAMYDIA	
ID112		113		113	RAPID HIV ANTIBODY	
	2101	2163	7620	11884	TOTAL	7620
					*** FUTURE PRODUCTS ***	
NAC16	190	190		380	CANCER	
NAC17		1		1	HPV (CERVICAL CANCER)	
NAH16	320	282		602	DIABETES (IDDM)	
NAH19	1475	1485		2960	HLA TYPING	
NAI14	875	2026		2901	HIV (AIDS)/DNA	
NAH13		0		0	FORENSICS	
				0	EKTANIZER	
	2860	3984	0	6844	TOTAL	0
					*** BASIC TECHNOLOGY ***	
				0	INFECTIOUS DISEASES (OTHER)	0
NAI12/DNA	149	2		151	DNA PROBES/KODAK	0
				0	DISPOSABLES (SURECELL KITS)	0
				0	EVALUATION (INT & EIT TESTING)	0
				0	REAGENT DEVELOPMENT	0
				0	REAGENT INTEGRATION	0
				0	MANUFACTURABILITY	0
	149	2	0	151	TOTAL	0
					*** NO CURRENT ACTIVITY ***	
IDC10	785	1089		1874	BREAST CANCER	0
IDC16	122	7		129	ONCOGENE RAS	0
NAI10/11	308	3		311	SHIGELLA/SALMONELLA	0
ID011	165	36		201	LM	0
				0	INSTRUMENTATION (FOR TEST SYSTEM EVAL)	0
				0	ANALYTICAL CHARACTERIZATION	0
				0	IMMOBILIZED ANTIBODIES	0
				0	POLYMERS	0
	1380	1135	0	2515	TOTAL	0
	6490	7284	7620	21394	TOTAL - ALL PROGRAMS	7620
		143	-50	93	LRP	-50
				0	CPI	0
		140	280	420	HRI	280
	6490	7567	7850	21907	TOTAL ALL EXPENDITURES	7850

016646  
CETUS

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RMS 71104





1306 RESEARCH PERSONNEL RE ESTIMATE 185 OF JANUARY 1999

Emp	4115 : 4426 : 4427 : 4428 : 4429 : 4437-41 : 2000 : 2002 : 2003 : 2720 : 4119 : 4208 : 4209 : 4200 : 4209 : 4210-41														
	Other : Basic : app			: 419 : 1900-1920 : Other : 1000			: 1000			: 1000					
1. P/T	NCB	Nov	SI/Nov	OC	Nov	SI/Nov	(Acad)	SI/Nov	Acad	(Acad)	SI/Nov	Acad	Nov	SI/Nov	Acad
130 P. Burdick, M								75					25		
131 P. Chace, M													100		
132 P. Collins, F		50					50								
133 P. Corbett, M														100	
134 P. Foster, M								25	25	25			25		
135 P. Galloway, M													100		
136 P. Jones, F															
137 P. Keith-Boyd, M							45								
138 P. Shaver, M			50	50											
139 P. Sutherland, M													100		
140 P. Sutton, M														100	
141 P. Warren, M														100	
142 P. Wu, M									100						
143 P. Zarek, M												25	25		
144 P. Zimmerman, M								25	25				50		
145 T. Baker, F						50						50			
146 T. Brown, M														100	
147 T. Chatterjee, M			50	25											
148 T. Collins, M													50	50	
149 T. Fendley, M							100								
150 T. Feltus, M								100							
151 T. Green, M			50									50			
152 T. Gross, M				50	50										
153 T. Heine, M							100								
154 T. Kuntzebaum, M													100		
155 T. Lact, M									50			50			
156 T. Pratt, M							100								
157 T. Schell, M														100	
158 T. Spence, M									100						
159 T. Sullivan, M					25	25									
160 T. Tardif, M						50						50			
161 T. Wimmer, M													25		
162 T. Tech, M															

Equivalent People : 0 : 6.25 : 1.5 : 1.75 : 1.4 : 1.65 : 1 : 2.25 : 2.75 : 0 : 2.25 : 4.75 : 0.5 : 1 : 3.5 : 0 : 0 Tot  
 Current Productor 9.75 Future Productor 6  
 Basic Technology 14 : 29  
 Other Equip People : : : : : : : : : : : : : : : : :  
 Total Equip People : : : : : : : : : : : : : : : : :

016649  
 CETUS

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RMS 71107

EXHIBIT 9

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RMS 71108

Kodak Memo

-03 23 1988

August 19, 1988

JSP

To: Ms. S. Aumiller                      Dr. P.A. Law                      Dr. P.N. Schnipelsky  
       Dr. J.B. Findlay                     Dr. J.S. Price                    Dr. J.J. Sninsky  
       Dr. W.G. Gerber                    Mr. H.C. Renton                 Mr. C. Yee  
       Mr. J.C. Junker                    Ms. G.C. Rodgers                Mr. J.R. Zeman  
       Mr. J.G. Knowles

From: Fred Marcellus, Biological Diagnostics, B-800L, KP (716-722-6537)  
 Subject: Kodak/Cetus Milestone Report for June 1988

Following is the Kodak/Cetus Milestone Report information through June of 1988. The report summarizes the information available at this time. The report is issued on a monthly basis.

### MILESTONE ISSUES

#### Current Products

- \* hCG (Smith-Lewis/Shih) - EK: Evaluating buffer placement alternatives (equipment & location), contamination prevention templates, automatic inspection capability and redesign of pre-filter.
- \* Herpes (Cummins/Madsen) - EK: External trade test in progress. These tests will go through the month of August in order to obtain a significant number of patient samples. Implementation meetings complete with both marketing and manufacturing. 510K information is being finalized and should be in place for final external site data.  
 Cetus: Four lots of HSV-1 and HSV-2 antigens, for use as positive control material, have been successfully inactivated and evaluated for sensitivity. A second production run of anti-HSV MAb 2B3-2A1 and anti-CK MAb are being scheduled by Norman Jung.
- \* Strep (Snyder) - EK: Production has begun.
- \* Gonorrhea (Gilbert/Mauck) - Cetus: Redevelopment of MAb purification procedures is expected to be completed in August, with internal trials commencing at that time. Timing is dependent on ascites availability from manufacturing. Prior to external trials, manufacturing-level ascites lots need to be available and cross-over of purification completed.
- \* Chlamydia (Mauck/Gilbert) - EK: The 510K was submitted on 7/11. Whole kit keeping will be initiated in July.
- \* Rapid Aids (Shih/Smith-Lewis) - EK: The main format will focus on a dilution/dispense device rather than dilution in each well. Reproducibility of Ag lots & Ag-beads is still precluding further optimization. Keeping of alternative conjugates has begun. Experiments on bead treatments are underway to make the negative and sample well beads similar for background (decrease false positive risk).  
 Cetus: Seven lots of CPI antigen were analyzed by SDS-PAGE and Western blot methods. Method of Ag-bead analysis is under development.

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 CETUS

RMS 71109

Future Products

- \* Cancer (Kawasaki) - no product defined
- \* HPV (Manos/Findlay) - Cetus: A PCR research assay for the detection of HPV sequences in clinical samples has been developed. Both generic and type specific primers and probes are being examined. The assay has been tested with limited clinical samples (cervical/vulvar swabs). A timeline for the development of an assay for use in a reference laboratory setting is being finalized.
- \* HLA Typing/Diabetes (Erllich) - no product defined
- \* HIV (Aids)/DNA (Kwok/Burdick) - Cetus: The HIV-PCR test was officially offered on July 6, 1988 through two California reference laboratories: Specialty Laboratories, Inc. (SLI) in Santa Monica, and Pathology Institute (PI) in Berkeley.
- \* Forensics (Higuchi/Wu) - EK: Evaluate the capture efficiencies of ASD-beads made by different procedures.
- PCR Instrument (Hinckley) - no input
- \* Endometriosis (Fenton) - EK: no input
- \* Periodontal (Snyder) - EK: Bg PAb's compatible with sandwich ELISA format as per Strep assay. A complete set of PAb's and MAb's for Bg, Bi and Aa as well as a complete panel of specific and nonspecific organisms for full prototype development expected in 2-3 weeks. Option agreement with Buffalo group finalized.

PERSONNEL SUMMARY

	Kodak Labor Period 6 Actual Hours	Cetus Labor May Actual Hours
Current Products	1494	1462
Future Products	802	3909
Core Development	2255	0
Misc/Limited Activity	<u>0</u>	<u>0</u>
	4551	5371

R&D EXPENDITURE SUMMARY

Kodak & Cetus (K\$)	May/June 1988			1988 YE		
	Forecast	Actual	% Var	Forecast	Estimated	% Var
Current Products	1725	1450	-15.9%	3553	3553	
Future Products	3570	2887	-19.1%	7283	7283	
Core Development	1400	1355	-3.2%	3034	3034	
LRPD, CPI, HRI	507	332	-34.5%	1080	1080	
Misc/Limited Activity	<u>0</u>	<u>23</u>		<u>0</u>	<u>0</u>	
	7202	6047	-16.0%	14950	14950	

Note: If you need more detailed information than is provided in this report, please contact the program leader directly.

The Milestone Issues, Personnel Summary and Milestone Schedule are distributed to the following as a separate document:

- |                  |                   |                      |
|------------------|-------------------|----------------------|
| Dr. B.A. Burdick | Dr. R.G. Higuchi  | Dr. J.C. Mauck       |
| Dr. T.J. Cummins | Mr. C.C. Hinckley | Ms. L.J. Scheurman   |
| Dr. H.A. Erllich | Dr. E.S. Kwaski   | Ms. Y. Shih          |
| Dr. S.S. Fenton  | Ms. S.Y. Kwok     | Dr. M.J. Smith-Lewis |
| Dr. H. Fisher    | Dr. R.D. Madsen   | Dr. B.A. Snyder      |
| Dr. J.H. Gilbert | Dr. M.M. Manos    | Dr. A.L. Wu          |



EK/CETUS - MILESTONE REVIEW of R&D PROGRAMS

8/19/88

Current Products	1987			1988			1989												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
hCG																			
Herpes																			
Strep																			
Gonorrhea																			
Chlamydia																			
Rapid Aids																			

ANT-Identify Antigens  
 ABS-Identify Antibodies  
 FMT-Dev Initial Test Format  
 INT-In House Tests  
 EIT-External Clinical Trials  
 (For Marketing Claims)  
 FDA-FDA Submission  
 AVL-Availability

\*\*\*\* Indicates that Milestone is behind schedule this amount

Future Products	1988			1989		
	Oct	Nov	Dec	Jan	Feb	Mar
DNA Based Tests						
Cancer						
HPV (Cervical Cancer)						
Diabetes (IDDM)						
HLA Typing						
HIV (Aids)/DNA						
Forensics						
PCR Instrument						
Endometriosis						
Periodontal-Bg						
-Aa						
-Bi						

MKT-Market Opportunity  
 FSB-Feasibility (Scientific / Commercial)  
 ADD-Add to Business Plan

Basic Technology

Quarterly Reviews Scheduled as Follows:

	Mar	Jun	Sep	Dec
DNA Probes & Infectious (need real schedule)	X		X	
Disposables & Evaluation	X		X	
Reagent Dev & Reagent Integration		X		X

(1) Herpes Availability delayed due to lack of manufacturing capacity

TOTAL  
EX/CETUS - R & D PROGRAMS  
CY 88 - thru period 6/June

TOTAL EXPENDITURES  
\*\*\*\*\*

PROGRAM NUMBER CETUS	KODAK	PRIOR YEARS	1988 EST	PROGRAM TOTAL	PROGRAM DESCRIPTION	1988 YTD		1988
						FCST	ACT	YE FCST ADP
			0	0	*** CURRENT PRODUCTS ***			
ID010	6515	1813	7	1820	hCG	3	99	7
ID110	6426	1154	502	1656	HERPES	243	194	302
ID111	6427	1620	221	1841	STREP	102	126	221
ID119	6428	1123	1200	2323	GONORRHEA	590	417	1200
ID116	6429	1443	446	1889	CHLAMYDIA	215	295	446
ID112	6519	123	1177	1300	RAPID HIV ANTIBODY	572	319	1177
		7276	3553	10829	TOTAL	1725	1450	3553
					*** FUTURE PRODUCTS ***			
MAC16		380	752	1132	CANCER	376	204	752
NAC17	2090	1	952	953	HPV (CERVICAL CANCER)	468	192	952
MAH16		602	564	1166	DIABETES (IDDM)	282	287	564
MAH19		2960	564	3524	HLA TYPING	282	573	564
MAI14	2087	2901	2357	5258	HIV (AIDS)/DNA	1159	1147	2357
MAH13	2089	0	1369	1369	FORENSICS	667	243	1369
	5720	0	725	725	PCR INSTRUMENT	335	241	725
		6844	7283	14127	TOTAL	3570	2887	7283
					*** CORE DEVELOPMENT ***			
	6119	392	271	663	INFECTIOUS DISEASES (OTHER)	125	1	271
NAI12/DNA	6205	1519	874	2393	DNA PROBES/KODAK	403	608	874
	6206	1991	331	2322	DISPOSABLES (SURECELL KITS)	133	158	331
	6208	321	224	545	EVALUATION (INT & EXT TESTING)	103	76	224
	6209	837	734	1571	REAGENT DEVELOPMENT	339	512	734
	6210-4	502	500	1002	REAGENT INTEGRATION	231	0	500
		248	100	348	MANUFACTURABILITY	46	0	100
		5810	3034	8844	TOTAL	1400	1355	3034
					*** MISC/LIMITED ACTIVITY ***			
IDC10		1874	0	1874	BREAST CANCER	0	18	0
IDC16		129	0	129	ONCOGENE RAS	0	0	0
MAI10/11		311	0	311	SHIGELLA/SALMONELLA	0	0	0
ID011	6508	368	0	368	LH	0	4	0
	6207	715	0	715	INSTRUMENTATION (FOR TEST SYSTEM EVAL)	0	1	0
	4447	435	0	435	ANALYTICAL CHARACTERIZATION	0	0	0
	5413	128	0	128	IMMOBILIZED ANTIBODIES	0	0	0
	6105	458	0	458	POLYMERS	0	0	0
		4418	0	4418	TOTAL	0	23	0
		24348	13870	38218	TOTAL - ALL PROGRAMS	6695	5715	13870
		143	-50	93	LRPD	-25	-16	-50
		290	850	1140	CPI	392	115	850
		140	280	420	HRI	140	233	280
		24921	14950	39871	TOTAL ALL EXPENDITURES	7202	6047	14950

013925  
CETUS

KODAK  
EK/CETUS - R & D PROGRAMS  
CY 88 - thru 6 periods

KODAK EXPENDITURES  
\*\*\*\*\*

PROG NO KODAK	PRIOR YEARS	1988 EST	PROGRAM TOTAL	PROGRAM DESCRIPTION	1988 YTD		1988
					FCST	ACT	YE FCST ADP
*** CURRENT PRODUCTS ***							
6515	1448	7	1455	HCG	3	28	7
6426	68	220	288	HERPES	102	97	220
6427	706	221	927	STREP	102	124	221
6428	24	260	284	GONORRHEA	120	9	260
6429	756	211	967	CHLAMYDIA	97	215	211
6519	10	425	435	RAPID HIV ANTIBODY	196	136	425
	3012	1344	4356	TOTAL	620	609	1344
*** FUTURE PRODUCTS ***							
			0	CANCER	0	0	
2090	0	200	200	HPV (CERVICAL CANCER)	92	0	200
			0	DIABETES (IDDM)	0	0	
			0	HLA TYPING	0	0	
2087	0	500	500	HIV (AIDS)/DNA	231	133	500
2089	0	447	447	FORENSICS	206	114	447
5720	0	725	725	PCR INSTRUMENT	335	241	725
	0	1872	1872	TOTAL	864	488	1872
*** CORE DEVELOPMENT ***							
6119	392	271	663	INFECTIOUS DISEASES (OTHER)	125	1	271
6205	1368	874	2242	DNA PROBES/KODAK	403	608	874
6206	1991	331	2322	DISPOSABLES (SURECELL KITS)	153	158	331
6208	321	224	545	EVALUATION (INT & EXT TESTING)	103	76	224
6209	837	734	1571	REAGENT DEVELOPMENT	339	512	734
6210-4	502	500	1002	REAGENT INTEGRATION	231	0	500
	248	100	348	MANUFACTURABILITY	46	0	100
	5659	3034	8693	TOTAL	1400	1355	3034
*** MISC/LIMITED ACTIVITY ***							
		0	0	BREAST CANCER	0	0	0
		0	0	ONCOGENE RAS	0	0	0
		0	0	SHIGELLA/SALMONELLA	0	0	0
6508	167	0	167	LH	0	1	0
6207	715	0	715	INSTRUMENTATION (FOR TEST SYSTEM EVAL)	0	1	0
4447	435	0	435	ANALYTICAL CHARACTERIZATION	0	0	0
5413	128	0	128	IMMOBILIZED ANTIBODIES	0	0	0
6105	458	0	458	POLYMERS	0	0	0
	1903	0	1903	TOTAL	0	2	0
	10574	6250	16824	TOTAL - ALL PROGRAMS	2885	2454	6250
			0	LRPD			
	290	850	1140	CPI	392	115	850
			0	HRI			
	10864	7100	17964	TOTAL ALL EXPENDITURES	3277	2569	7100

CETUS  
 EK/CETUS - R & D PROGRAMS  
 CY 88 - thru June

CETUS EXPENDITURES  
 \*\*\*\*\*

PROG NO CETUS	PRIOR YEARS	1988 EST	PROGRAM TOTAL	PROGRAM DESCRIPTION	1988 YTD		1988 YE FCST ADP
					FCST	ACT	
*** CURRENT PRODUCTS ***							
ID010	365	0	365	ACG	0	71	0
ID110	1086	282	1368	HERPES	141	97	282
ID111	914	0	914	STREP	0	2	0
ID119	1099	940	2039	GONORRHEA	470	408	940
ID116	687	235	922	CHLAMYDIA	118	80	235
ID112	113	752	865	RAPID HIV ANTIBODY	376	183	752
	4264	2209	6473	TOTAL	1105	841	2209
*** FUTURE PRODUCTS ***							
MA116	380	752	1132	CANCER	376	204	752
MA117	1	752	753	HPV (CERVICAL CANCER)	376	192	752
MA116	602	564	1166	DIABETES (IDDM)	282	287	564
MA119	2960	564	3524	HLA TYPING	282	573	564
MA114	2901	1857	4758	HIV (AIDS)/DNA	929	1014	1857
MA113	0	922	922	FORENSICS	461	129	922
	0	0	0	PCR INSTRUMENT	0	0	0
	6844	5411	12255	TOTAL	2706	2399	5411
*** CORE DEVELOPMENT ***							
		0	0	INFECTIOUS DISEASES (OTHER)	0	0	0
MA112/DNA	151	0	151	DNA PROBES/KODAK	0	0	0
		0	0	DISPOSABLES (SURECELL KITS)	0	0	0
		0	0	EVALUATION (INT & EXT TESTING)	0	0	0
		0	0	REAGENT DEVELOPMENT	0	0	0
		0	0	REAGENT INTEGRATION	0	0	0
		0	0	MANUFACTURABILITY	0	0	0
	151	0	151	TOTAL	0	0	0
*** MISC/LIMITED ACTIVITY ***							
IDC10	1874	0	1874	BREAST CANCER	0	18	0
IDC16	129	0	129	ONCOGENE RAS	0	0	0
MA110/11	311	0	311	SHIGELLA/SALMONELLA	0	0	0
ID011	201	0	201	LN	0	3	0
		0	0	INSTRUMENTATION (FOR TEST SYSTEM EVAL)	0	0	0
		0	0	ANALYTICAL CHARACTERIZATION	0	0	0
		0	0	IMMOBILIZED ANTIBODIES	0	0	0
		0	0	POLYMERS	0	0	0
	2515	0	2515	TOTAL	0	21	0
	13774	7620	21394	TOTAL - ALL PROGRAMS	3810	3261	7620
	143	-50	93	LRPD	-25	-16	-50
			0	CPI	0	0	0
	140	280	420	HRI	140	233	280
	14057	7850	21907	TOTAL ALL EXPENDITURES	3925	3478	7850

4313: 4424: 4427: 4428: 4429: 4519: 2998: 2947: 2949: 3720: 714: 4119: 4293: 4426: 4428: 4294: 4218: 4

Chgo: Rnd: MIV: NIV: Form: Ester: Pmt: Other: 3rd: Reopt: Reopt

Name	NCE	Mrg	Strer	RC	Terria	NIV	444	sics	lizer	(Emo)	ental	(Direct)	Process	Diso	Eval	Dev	Interst	Mrg
Saches															155.5			157
Bozeman															76			152
Boyer															183.5			143
Brown																	144	144
Burdick															156			134
Chaukce																	152	152
Conteblato, F.															156			156
Cummins																		152
Datta															150			156
Evans																	76	152
Featon																	152	152
Fleming															55		70	120
Friedberg, G.																		18
Fries																	86	152
Green																		9
Grogan																		92
Holme																		104
King															82.5		78.5	161
Korenbaum, L.																	142	142
Koch																	136	136
Kurtz																	152	152
Lewis																	152	152
Pratt															110			152
Scheil																	136	136
Schulz																	142	142
Smith-Lewis, R.															6		18	60
Spencer															135		82	152
Speck																	136	136
Sullivan, S.																	80	80
Sutherland, J.																	128	128
Tuller																	148	148
Warren																	148	148
Wu																	136	136
Zerger															132.5		52	167
Labor hours	186	240	237	0	453	510	0	486	272	0	0	43	0	916	150	184	184	4510
Other hours	0	0	12	0	0	0	0	0	0	0	0	0	0	20.4	0	0	0	0
Total Hours	186	240	249	0	453	510	0	486	272	0	0	43	0	936.4	150	184	184	4510
Current Product	1414								82					225				4550

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RMS 71115

CETUS RESEARCH PERSONNEL - Actual Hours for Nov. 1998

Dept Name	ACS	Hemp	Strom	GC	Hayden	WV	Cancer	WV	Cancer	WV	Cancer	WV	Cancer	WV	Cancer	WV	Cancer	WV	Cancer																												
Salerno, J.		22		20	20	20	22	20			22	22							168																												
421 Birck, B.											142								142																												
Huck, S.											168								168																												
431 Haney, K.								104											104																												
199, J.								151											151																												
Wright, J.								134											134																												
Lander, E.								104											104																												
Loew, K.								76											76																												
442 Ferrara, J.											152								152																												
McIntyre, P.								68			104								158																												
Malton, S.											168								168																												
443 Chang, J.											104	68							168																												
Leventon, C.											72								72																												
444 Benjamin, J.											152								152																												
51211, K.										75	75								150																												
Griffin, J.											160								160																												
Hughes, K.											156								156																												
134																																															
Salek, M.											80								80																												
Schmitt, J.											168								168																												
446 Cavalotti, J.											168								168																												
Cooper, J.								168											168																												
Gilbert, J.								120	28										148																												
Greer, J.								168											168																												
Kelly, S.											152								152																												
Lowe, S.											168								168																												
136																																															
137																																															
Norris, S.											168								168																												
Rice, J.											152								152																												
Rosner, B.											168								168																												
Sanders, G.								22	20	20	20	22	20					22	20	168																											
Sever, F.											24								24																												
Shah, J.											168								168																												
138																																															
Triglia, M.											168								168																												
720 Jung, H.								10	1									2	20	40																											
Kennedy, L.											8							4	1	13																											
Lee, P.																				1																											
Lawrence, A.											11									11																											
Matrix		17	2		0	2	25		14.5		0	18	142	93	114.5		38	0	0	412																											
22	22		0	743	81	1399.5	528	507	385	600	1134		743		0	0	0	0	5272																												
Total hours in Nov. 1998												Current Products 1998												Future Products 1999, Discall 0												Total hours 5372											

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RMS 71116

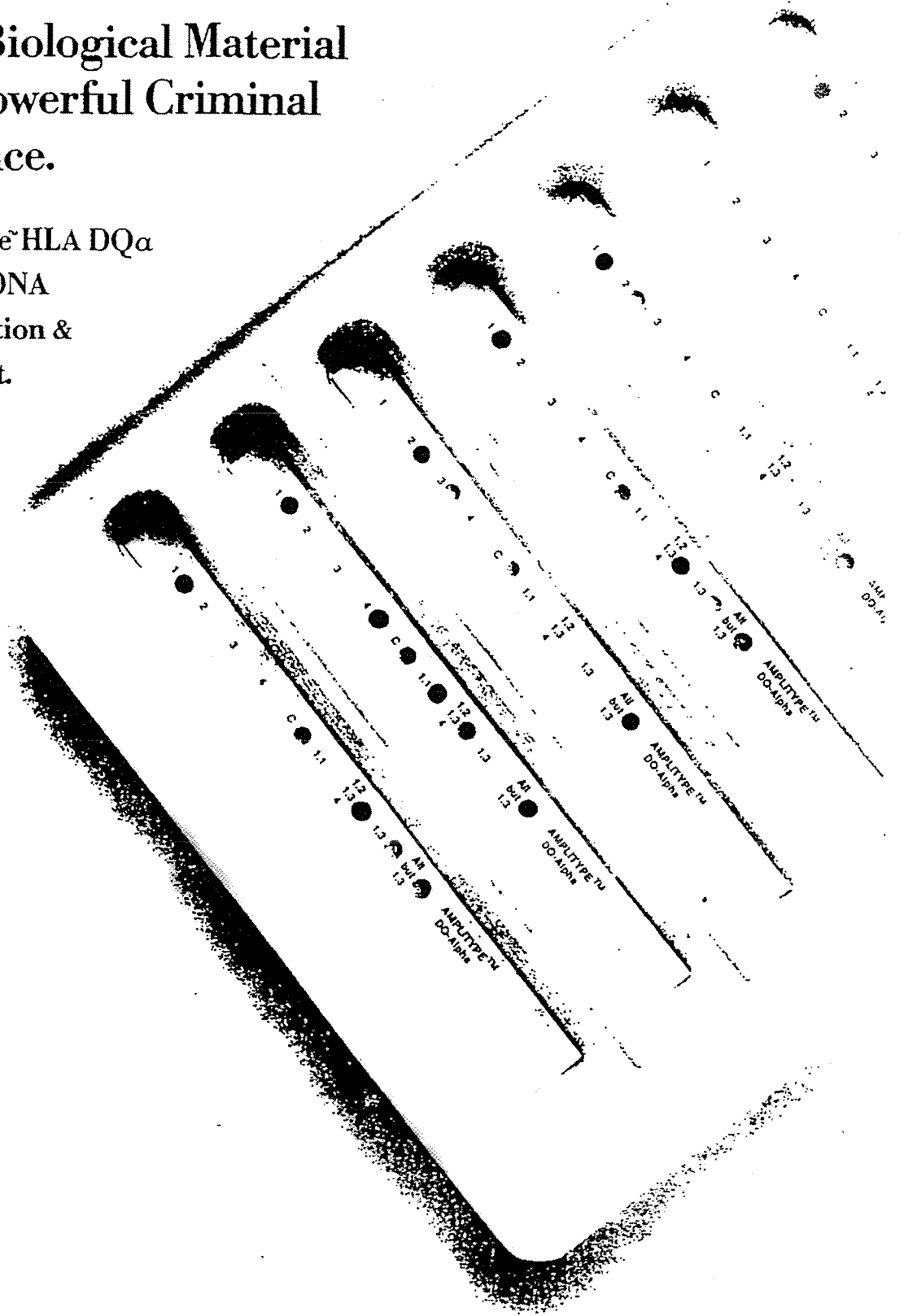
EXHIBIT G

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RMS 71117

# Turn Biological Material Into Powerful Criminal Evidence.

AmpliType<sup>®</sup> HLA DQ $\alpha$   
Forensic DNA  
Amplification &  
Typing Kit.



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RMS 71118



## The AmpliType<sup>®</sup> HLA DQ $\alpha$ Kit: Revolutionizing DNA typing.

### The practical tool for the forensic laboratory.

Increasing caseloads and the growing recognition of DNA typing as an important criminal investigation tool are challenging the forensic laboratory. Time-consuming, labor-intensive procedures requiring specialized skills limit the number of specimens that can be processed. Based on the powerful GeneAmp<sup>™</sup> PCR technology, the AmpliType HLA DQ $\alpha$  Forensic DNA Amplification and Typing Kit provides a rapid, automated procedure requiring only minimal amounts of DNA and allowing typing of DNA from degraded material.

### Convenient, one-step amplification.

Once the DNA has been extracted from the biological specimen, amplification of the DQ $\alpha$  region begins in only a few minutes. The PCR reaction mix provided in the AmpliType Kit has been preformulated to include the enzyme AmpliTaq<sup>™</sup> DNA polymerase, nucleotides and DQ $\alpha$  primers. Just add the extracted DNA sample to the DNA amplification reagents and begin amplification in the DNA Thermal Cycler.

### Dot blot format: Simple to use, easy to read.

The AmpliType HLA DQ $\alpha$  Kit uses the dot blot format familiar to immunologists and molecular biologists. In this format, the DNA probes that complement the six alleles of the DQ $\alpha$  gene are provided as immobilized dots on a DNA probe strip.

When the amplified DNA sample is added to the DNA probe strip, the alleles present in the sample hybridize to the complementary probes on the strip.

Following a subsequent color development step, the hybridized DNA product is visualized as a blue dot. The DQ $\alpha$  type is identified by reading the pattern of dots on the DNA probe strip.

### Nonisotopic, colorimetric detection: Fast and safe.

Since hybridization is visualized in a colorimetric reaction, radioisotopes are not used. This eliminates the expense and hazards of handling, storing and disposing of radioactive material. Special licenses are not required to perform the procedure.

Significant time and cost savings also result. There is no need to perform autoradiography. The results are immediately visible.

### A cost-effective screening tool.

The DQ $\alpha$  system has been used in forensic casework since 1986 and has proven useful in excluding or including suspects in criminal cases. By using GeneAmp PCR technology and the dot blot format, the AmpliType Kit offers a simple procedure, rapid results and significantly lower costs. This makes DQ $\alpha$  typing cost-effective as a screening tool to quickly determine if further analysis is necessary. Since amplification is automated and typing is simple and rapid, more cases can be processed. Once the DNA has been extracted from the sample, results are available in less than a day.

## GeneAmp™ Polymerase Chain Reaction: A new level of sensitivity.

### Amplify target DNA sequences automatically.

The GeneAmp polymerase chain reaction is an *in vitro* method for the enzymatic synthesis of specific DNA sequences. Two specific oligonucleotide primers that hybridize to opposite strands and flank the target DNA region of interest are used. The repetitive series of cycles involves three steps. First, the DNA strands to be copied (the template) are denatured by heat. Next, a cooling step anneals the primers. In the third step, the annealed primers are extended by the enzyme AmpliTaq DNA polymerase, producing a copy of the target DNA region. The cyclic repetition of these steps results in the exponential accumulation of the approximately 240 base pair sequence of the HLA DQ $\alpha$  region.

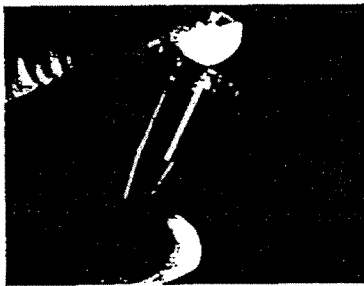
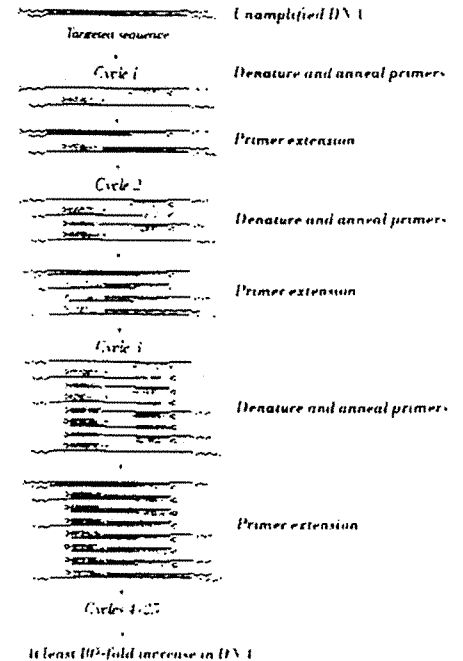
All this is performed automatically in the PE Cetus DNA Thermal Cycler that controls the temperature and cycling conditions for the amplification process.

### From picograms to micrograms within hours.

Because the primer extension products synthesized in one PCR cycle serve as a template in the next, the number of target DNA copies approximately doubles after every cycle. Thus, 20 PCR cycles can yield approximately a millionfold ( $2^{20}$ ) amplification.

Within hours, millions of copies of just the DQ $\alpha$  region in the sample are generated and ready for analysis. With the sensitivity offered by PCR, even samples containing less than a nanogram of human DNA can be analyzed.

### Polymerase chain reaction.



In the first and most important step of genetic analysis, DNA is extracted from biological specimens such as a hair, a semen stain, a blood stain or other material.



The extracted DNA is added to the PCR reaction mix, which is provided with the AmpliType HLA DQ $\alpha$  Kit. The samples are amplified in the PE Cetus DNA Thermal Cycler.



The amplified DNA is added to the DNA probe strip on which the DQ $\alpha$  DNA probes have been immobilized. No preparation of the strips is necessary.

# HLA DQ $\alpha$ typing: The logical starting point in forensic casework.

## Fully characterized for forensic testing.

By determining the genetic type of the donor of the biological evidence sample, DNA typing can be a powerful tool for including or excluding suspects.

The AmpliType HLA DQ $\alpha$  Forensic DNA Amplification and Typing Kit detects genetic variation at the highly polymorphic DQ $\alpha$  locus, one of the Human Leukocyte Antigen Class II (HLA-D) genes located on chromosome 6. These genes have been studied extensively. The HLA-D genes are organized into three regions: HLA-DR, -DQ and -DP, each of which encodes an alpha and beta glycopeptide. The DNA sequence of the HLA DQ $\alpha$  alleles is known.<sup>1</sup>

## Excellent discriminating power.

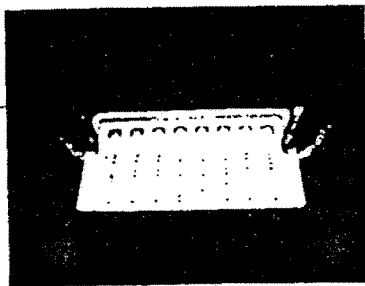
The six most common HLA DQ $\alpha$  alleles (A1.1, A1.2, A1.3, A2, A3 and A4) define 21 genotypes with frequencies ranging from less than 0.005 to 0.15. Based on allele and genotype frequency data available for certain Caucasian, Black, Hispanic and Asian populations, the discriminating power of the DQ $\alpha$  typing system is approximately 0.3%.<sup>2</sup>

1. Saito, R.K.; Walsh, P.S.; Levenson, G.H.; Erlich, H.A. "Genetic Analysis of Amplified DNA with Immunotized, Sequence-Specific Oligonucleotide Probes." *Proc. Natl. Acad. Sci. USA* 86, 6230-6234 (1989).
2. Gyllenstein, U.B.; Erlich, H.A. "Generation of Single-Stranded DNA by the Polymerase Chain Reaction and Its Application to Direct Sequencing of the HLA-DQA Locus." *Proc. Natl. Acad. Sci. USA* 85, 7652-7656 (1988).
3. Heimuth, B. et al. "HLA DQ $\alpha$  Allele and Genotype Frequencies in Various Human Populations Determined by Using Enzymatic Amplification and Oligonucleotide Probes." Unpublished manuscript.
4. von Beronzen, A.H.; Blake, E.T.; Heston, B.; Sensibaugh, G.F.; Erlich, H.A. "Associations of PCR to the Analysis of Biological Evidence." in *PCR Technology: Application Process* (1991) Chapter 17, 21-22.

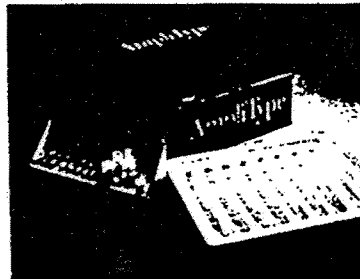
## Get started today with the AmpliType Kit.

The AmpliType HLA DQ $\alpha$  Forensic DNA Amplification and Typing Kit includes the PCR mix for DNA amplification, DNA probe strips and other reagents and supplies needed for amplifying and typing the HLA DQ $\alpha$  region. Simple, complete instructions are included for your convenience.

Most importantly, the AmpliType HLA DQ $\alpha$  Kit comes with support from the Cetus Forensics Group. Technical assistance is available through our toll-free number (1-800-548-4545). The customer support program also includes training workshops. Contact Cetus today for more information on the AmpliType Kit. To place an order, call PEXPRESS at 1-800-762-4002.



The particular alleles in the sample hybridize to the complementary probes on the DNA probe strip. Following a subsequent color development step, the hybridized product is visualized.

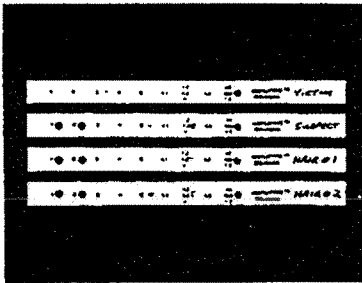


The AmpliType HLA DQ $\alpha$  Forensic DNA Amplification and Typing Kit includes all the reagents required for DQ $\alpha$  analysis of DNA samples.

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RMS 71121

**HLA DQ $\alpha$  typing:  
At work in the forensic laboratory.**



**Casework example 1.**

In this homicide case, foreign hairs were recovered from the victim's body. DNA was extracted and analyzed using the AmpliType™ HLA DQ $\alpha$  Forensic DNA Amplification and Typing Kit to determine whether or not these hairs could have originated from the suspect.

**Results of DNA analysis.**

Sample Type	Description	DQ $\alpha$ Type
Blood	Victim (reference blood)	3.3
Blood	Suspect (reference blood)	1.3.2
Hair	Hair #1	1.3.2
Hair	Hair #2	1.3.2

**Inference.**

The DQ $\alpha$  type of both hairs was determined to be 1.3.2. This type occurs in approximately 1.7% of the general population.

The suspect was also determined to be DQ $\alpha$  type 1.3.2 and therefore could not be eliminated as a source of these hairs.

**Casework example 2.**

Vaginal swabs containing human semen from the victim of an alleged sexual assault were submitted to the crime laboratory. DNA analysis using the AmpliType HLA DQ $\alpha$  Forensic DNA Amplification and Typing Kit was conducted to determine whether or not the suspect could be eliminated as a potential sperm donor.

**Results of DNA analysis.**

Sample Type	Description	DQ $\alpha$ Type
Blood	Victim (reference blood)	2.3
Blood	Suspect (reference blood)	1.1.4
Vaginal swab	Epithelial cell DNA	2.3
Vaginal swab	Sperm DNA	1.2.1.3

**Inference.**

The sperm DNA from the vaginal swab was adequately separated from the female's epithelial cell DNA. The victim was determined to be DQ $\alpha$  type 2.3. The DQ $\alpha$  type of the sperm was determined to be type 1.2.1.3.

The suspect was determined to be DQ $\alpha$  type 1.1.4. Therefore he was eliminated as the sperm donor in this case.

## Ordering information.

Item	Catalog No.
AmpliType HLA DQ $\alpha$ Forensic DNA Amplification & Typing Kit	N808-0002

To order: 1-800-762-4002 (PEXPRESS)  
For Cetus technical support: 1-800-548-4545



CETUS CORPORATION  
Forensics, PCR Division  
1400 Fifty-Third Street  
Emeryville, CA 94608  
(800) 548-4545  
Fax: (415) 601-1727

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EXHIBIT H

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RMS 71124



RECEIVED DEC 28 1987

RDMC INTERIM MEETING  
12/7/87 at Cetus

*[Handwritten notes and signatures]*  
F/ Kodak  
RDMC  
cc: S. Amulher  
~~S. Souther~~  
~~S. Gould~~

(1) Status Reports

(a) Status of Immunodiagnostic Tests

Paul Schnipelsky outlined the current status and schedules (see Attachment I).

Schedules have been maintained since the October RDMC except for one month slip in GC and HOG and uncertainty regarding the time required for FDA approval of the HIV rapid test.

Issue: How many strains of GC must be detected? What is the prevalence of strains. A list of questions to be asked of experts will be developed by Paul Schnipelsky, John Sninsky, and Bill Gerber.

Issue: In order to facilitate FDA approval of the rapid HIV test, an advisory committee will be established to ensure complete, timely application. This group will be:

- Paul Law - EK (Chair)
- Norbert Norkus - EK
- Wanda De-Vlaminck - Cetus
- Nancy Durst - EK
- Richard Montagna - CPI
- Bernard Polesz - Upstate Medical Center, NY

(b) Status of Ektamiser

This is a processor for pods to contain PCR reagents in a prepackaged format. The program at Kodak is many months behind schedule, and the instrument is marginally functional. An evaluation is underway to determine salvage value and future course of action. Bill Gerber will explore possibilities. John Sninsky and Paul Schnipelsky to develop R&D plan and budget. Hanna Fischer and John Knowles to prioritize targets. A meeting with PE was recommended to help reduce redundant activities.

(2) R&D Budget

The budget is attached (Attachments II & III). The HRI expenditures will be moved from SIC to R&D and line items for "contract R&D" will be established for HRI and CPI. Cetus R&D will not exceed \$7600K in 1987. The 1988 estimated budget will be revised slightly, but the total will be unchanged.